



UNIVERSITY OF
ILLINOIS CHICAGO

Health Informatics Career Guide

**Know what to expect,
then plan for it.**

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WHAT IS HEALTH INFORMATICS?

It's About Data and How it's Used to Improve Patient Care

The Technology Behind Health Informatics

The health informatics field isn't new, but the way it's transforming healthcare is. Recent advancements in technology, such as wearable devices and the cloud, have made it possible for massive amounts of patient data to be collected, organized and stored on a regular basis.

But health informatics isn't solely about capturing data; it's about **analyzing information and knowing how to use it in a meaningful way** to promote positive patient outcomes. The more a doctor, nurse or therapist knows about a patient, the more personalized their care can be — and the more a patient knows about their own health, the more empowered they will feel to actively make decisions about it.

The goal of health informatics is to design and develop smart systems that communicate with each other and offer a consistent platform for patients and healthcare providers to do the same. That means healthcare professionals who typically don't work together are able to collaborate and align their care through innovative, real-time technology.

- Online portal systems
- Electronic health records
- Data collection devices
- Personal data devices
- Health apps
- Email

Health Informatics

Biomedical informatics or healthcare informatics focuses on information, technologies, innovations and methodologies that identify ways to deliver more efficient and effective patient care to improve health outcomes. Health informaticians strive to improve knowledge access and contribute guidance on effective strategies to engage clinicians in embracing technology and optimizing health information and technology. Health informatics also addresses the interdisciplinary study of the design, development, adoption and application of IT-based innovations in healthcare services delivery, management and planning.



WHY IS HEALTH INFORMATICS IMPORTANT?

3 Reasons Why Health Informatics is Important

Consumer Access & Connected Health

When consumers have easy access to their health records, it encourages them to play a more active role in their own healthcare decisions. But more than that, it **empowers patients to educate themselves about their health condition and how to manage it.** Making information accessible through digital platforms and connected devices also allows patients to interact with doctors and nurses in a more productive way.

“Providers have to see patients as a partner with a real voice and a personal vested interest in care,” Dr. Geeta Nayar, chief healthcare and innovation officer at Femwell Group Health, Inc., told the Healthcare Information and Management Systems Society. “Patients are quickly becoming the CEO of their own healthcare, and the valuebased model is more crucial in the physician-patient relationship.”

Reduce Healthcare Costs

The systems created by health informatics professionals are designed to support early detection and diagnosis, which are key to lowering healthcare costs. Since electronic health record systems provide a comprehensive overview of a patient’s health history, **it’s easier to identify health risks and provide treatment early on, which eliminates the cost associated with unnecessary doctor visits, labs and prescription medication.** Here’s a real-world example from Johns Hopkins Medicine demonstrating how it has saved money through health informatics.

Hopkins designed an artificial-intelligence-powered data command center that was programmed to make split-second decisions. These decisions are based on real-time data, including patient health records, emergency dispatch updates and hospital bed availability. The information is used to get patients the care they need. Since its launch in 2016, the command center has achieved.

Improved Health Outcomes

Certain problems — like medical errors, hospital acquired infections and avoidable readmissions — have existed in healthcare for a long time, but some of those are starting to be solved thanks to innovative solutions and algorithms being developed through health informatics. Here’s why: **Many of the new digital and data tools focus on making care more efficient and precise** so healthcare professionals can continue providing caregivers with the right data at the point of care for improved clinical decision-making.

Wearable health trackers like watches and heart monitors are now alerting people about everything from sleep apnea to low blood sugar and even serious cardiac arrhythmias. This technology is one of the biggest advancements in healthcare, because it provides comprehensive information that helps make healthcare decisions more straightforward and accurate.

60%

Increase in ability to accept complex cancer patients

30%

Decrease in emergency room boarding

70%

Decrease in operating room holds

Although this is only one example of how health informatics is impacting healthcare costs for patients and providers, it’s an indication of what to expect in the future for this emerging field.

Health Informatics is Bringing Radical Change to Healthcare

Data Overload

In today's data-driven world, healthcare data accounts for nearly 30% of global data production.

From lab results to genetic profiles and medical claims to prescriptions, a vast repository of patient information is constantly growing. This surge in data has propelled healthcare IT to become one of the fastest growing job markets as organizations leverage this data as a key strategic asset.

Health informatics is working toward the future where the use of a rich fabric of data to plan, test, implement and verify the value of digital health will be integrated into all healthcare processes.

As organizations move ahead with digital health strategies, they are building strong product and project management capabilities. Skilled professionals in product and service line management are focused on customer satisfaction and engagement. Project managers plan and lead successful implementations.

Health data scientists collect, analyze and interpret data so that it can be used to drive patient care decisions, and improve efficiency. These health informatics skills are in high demand and are powering digital health transformation.

With a more proactive approach, enhanced by Artificial Intelligence (AI), patient care is being redefined. Looking at the predictive abilities of AI, we can potentially identify personalized treatments and interventions.

Skilled professionals are now in high demand to collect, interpret and utilize data to ensure its accuracy and usability.

Whether it's an alert about a spike in heart rate or an update about lab results, the information is made possible by health informatics. The healthcare delivery model is changing, and it's only the beginning.

Source: Fortune

A Changing Workplace

- Digital Health Market to Hit \$809.2 Billion by 2023.
Source: Bloomberg
- Digital tools, such as patient portals, mobile applications, and wearable technologies bring convenience, provide patients with easier access to their health records and clinical expertise, and make collecting health data less intrusive. Source: Science Direct
- mHealth: Students are equipped with the methods and tools that are poised to revolutionize healthcare.
Source: UIC
- Significant innovations and improvements in disease identification and early intervention have been made using AI-generated algorithms for clinical decision support systems and disease prediction models.
Source: National Library of Medicine
- While transforming healthcare, health informatics can reduce transactional tasks for the 63% of U.S. health workers who say the work they do requires a great deal of manual entry or analysis.



There's a tremendous amount of digital data available in hospitals and in the broader healthcare community that has never been available before.

Mark Wolff
Chief Health Analytics Strategist
SAS Institute

SPOTLIGHT: CHICAGO

A Tech Hub on the Rise

Top 13 Worldwide

Cities around the world are constantly thinking of ways to stand out as digital innovators, but only a few have done so successfully, and Chicago is one of them. A new report from KPMG surveyed more than 800 tech leaders and found that **Chicago is in the top 13 of health tech innovation hubs worldwide.**

What makes the Windy City a desirable hub for startups of all sizes is its talent, infrastructure and training programs. Since many of these startups are focused on cutting-edge technology like artificial intelligence and the Internet of Things, Chicago's innovative culture is also a big draw for new tech companies.

Major Medical Headquarters

When it comes to blending technology and healthcare, Chicago has an advantage with multiple teaching hospitals and one of the highest numbers of residents and fellows per capita. The city is also home to several major medical headquarters such as the American Alzheimer's Association, American Heart Association, American Hospital Association and American Medical Association.

Because of the rise in demand for health informatics professionals, Chicago-based universities like the University of Illinois at Chicago are instrumental in offering educational pathways that prepare students to be successful in this increasingly competitive market. If you're looking for a tech-savvy, healthcare-focused city to grow your health informatics career, Chicago could be the right place for you.

- American Alzheimer's Association
- American Heart Association
- American Hospital Association
- American Medical Association



CAREER OUTLOOK

This is More Than a Career. It's Your Chance to Lead a Healthcare Movement

Growth in Health IT

In the next three to five years, the U.S. Bureau of Labor Statistics predicts that **the healthcare industry will need nearly 50,000 new health IT professionals** to accommodate the government-led shift toward electronic health records. Demand for information technology professionals was reaffirmed by a 2019 survey recently released by the Healthcare Information and Management Systems Society. The survey found that 81% of health IT vendors and 59% of healthcare providers expect there to be increased demand for information and technology resources in the coming year, with these roles accounting for 63% of open positions for hospitals and 68% for vendors.

Certain healthcare organizations have been quick to implement new technology aimed at improving their processes and patient outcomes, while others lag behind — either because they lack the resources to make it happen or they don't understand why they should. That's where you come in — a trained health informatics professional who can advocate for the patient and the future of healthcare.

By pursuing your career in health informatics, you can improve access to health data, define the processes that are revolutionizing the healthcare industry and advance the overall delivery of patient care around the world.

The Potential

• **Employment of medical and health services managers is projected to grow 32% between 2019 and 2029, which is much faster than the average for all occupations.**

Source: U.S. Bureau of Labor Statistics.

• **The median salary for medical and health services managers is \$100,980.**

Source: U.S. Bureau of Labor Statistics.

• **89% of physicians and other providers rate IT as important/very important to their practice.**

Source: CIO.

• Beyond the impact you can have, there's also an opportunity to increase your compensation. **Professionals with a master's degree in health informatics make an average of \$20,000 more annually than those with only a bachelor's degree,** according to American Health Information Management Association.

Areas of Specialization

With the amount of data that's out there and how complex healthcare data is, choosing an area of specialization can help focus your knowledge and target your expertise. By doing this, you're also positioning yourself as a more valuable asset in the information technology movement.

- Leadership
- Analytics
- Health Data Analytics
- Healthcare Information Security
- Telehealth and Telemedicine
- Public Health Informatics
- Nursing Informatics
- Pharmacy Informatics
- Consulting – Health Informatics
- Medical Coding and Billing
- Artificial Intelligence
- Clinical Informatics
- Genomics & Precision Medicine
- Health Services Research
- Innovation
- Machine Learning
- Mobile Health Tech
- Pharmaceutical Research
- Population Health Management
- Product Development
- Educational Institutions
- Vendor and Software Development
- Health Informatics Policy and Regulation
- Patient Engagement and Experience

Career Opportunities

Chief Medical Information Officer (CMIO) \$322,9291

This role is fairly new to the healthcare scene, but it's one that's rising in demand. Most CMIOs are practicing physicians or IT professionals with specialized training. On a regular basis, they evaluate an organization's IT systems, analyze health data to improve operations and train a variety of healthcare professionals in IT systems and applications.

Director of Information Technology \$122,3381

Healthcare technology doesn't develop and deploy itself; it takes leadership and technical advice from someone with the skills to bring new products to market in a strategic way. That someone is a director of information technology. Professionals in this role are tasked with overseeing technical projects based on benchmarks they set and managing IT system performance.

Healthcare Product Manager \$115,000

As a Healthcare Product Manager, you play a critical role in the development, enhancement, and management of healthcare products and solutions. You will lead the vision, strategy, and advancement of the product. This role requires a deep understanding of the healthcare industry, including regulatory requirements, market trends, and user needs.

Clinical Informatics Director \$85,495

As the advocate for new systems, a clinical informatics director champions the implementation process and trains staff on how to use each platform. They are also instrumental in keeping an eye on the latest trends in healthcare technology and recommending changes as needed.

Clinical Informatics Specialist \$73,110

Before a system can be used, the user interface needs to be built. And that's what clinical informatics specialists do. They build and test user interfaces that store and analyze health information, then educate staff members on how to effectively use them. Clinical informatics specialists also play a key role in developing strategies and best practices for the development of future information systems.

Health Informatics Consultant Technology \$90,000

Making sure an organization is compliant is a big responsibility, but health informatics consultants have the knowledge and expertise to handle the job. They ensure that an organization complies with federal regulations and support internal staff to train them on new procedures or technology integrations. To do this well, they're required to remain current with industry trends and anticipate future ones.

Epic Consultant \$97,760

Epic consultants can uncover and tackle the biggest challenges in fast-paced environments where flexibility, adaptability, and resilience are key skills. Consultants listen, analyze and identify root causes of pressing issues. They develop and implement the tools and training to lead clients through implementation and optimization of their epic systems.

Pharmacy Informaticist \$118,847

When it comes to medications, the more precise a prescription is, the less likely there will be a chance for error or misuse. Pharmacy informaticists are focused on exactly that. They're replacing the traditional handwritten prescriptions with digital solutions to provide more accurate medication data to suppliers and patients.

Predictive Analytics Lead \$110,783

Data is useless if no one understands it. That's why the work of a predictive analytics lead is so essential in today's information-heavy healthcare environment. They combine strong data exploration, statistical modeling, communication and collaboration skills to deliver analysis and models.

Physician Informaticist \$143,698

Before a process can be improved, it's important to understand what needs to change. Physician informaticists are trained to do both. They have the advanced skills to analyze a current process, identify its flaws and present reliable solutions that fulfill the needs of clinicians.

Clinical Analyst \$71,678

Clinical analysts work as a liaison between patient care and clinical technologies by designing, implementing and maintaining clinical systems. They're focused on controlling the flow of information as it's collected from patients, clinicians, doctors and other healthcare professionals while making system updates as needed.

Healthcare IT Project Manager \$88,397

From start to finish, healthcare IT project managers oversee every step it takes to launch large-scale technology projects — including the supervision of all team members involved in the project. Their goal is to improve business processes and maximize efficiency by driving quality results with a measurable impact.

Healthcare User-Experience Strategist \$110,000

As a Healthcare Product Manager, you will play a critical role in the development, enhancement, and management of healthcare products and solutions. This role requires a deep understanding of user research and analysis, UX strategy development, and usability testing.

Clinical Database Programmer \$73,506

Clinical database programmer's support clinical trial data management and programming tasks associated with creating, verifying, and documenting analyses and reporting.

Average salary according to Glassdoor

WORK SETTING

Traditional vs. Non-traditional

Choose Your Setting

As the number of healthcare facilities making the shift toward electronic medical records increases, so do the opportunities for health informatics professionals. There are positions available in a variety of settings to impact patient outcomes.

From the more traditional like hospitals and clinics to the non-traditional like public health offices and insurance companies, there are plenty of environments to consider when entering or seeking to advance in the health informatics field.

One thing to keep in mind is that health informatics professionals working in a hospital setting focuses heavily on clinical and patient information, while other settings bring in claims data.

Traditional

- Academic
- Care facilities
- Clinics
- Group practice
- Health systems
- Hospitals
- Medical organizations
- Nonprofits
- Nursing homes
- Private practice

Non-traditional

- Community outreach
- Health informatics consulting
- Healthcare software vendors
- Insurance companies
- Non-healthcare tech companies
- Pharmaceutical industry
- Public health offices
- Public policy & government
- Cyber security & blockchain technology
- Life Sciences Research

HEALTH INFORMATICS & UIC

Our Program Can Improve Your Outcomes Too

Make Your Move

If you're already committed to your career in health informatics, take the next step by earning your [Master of Science in Health Informatics degree online](#) with the University of Illinois Chicago. As a program graduate, you'll be poised to lead your respective organization in the development and implementation of health informatics strategies to improve patient care and ensure access to information.

Graduate Outcomes

The following outcomes were measured for the MS in Health Informatics in spring of 2022.

- Completion rate: 93% earned their MS degree within 3 years.
- Satisfaction rate: 91% of graduates were satisfied with the program.
- Employment within one year: 92% of graduates were employed post-program completion.

GETTING STARTED

How to Break into the Health Informatics Field

Develop Your Skills

A common question asked by professionals ready to grow their career in health informatics is: **How do I break into a field where I have limited experience?** For starters, many professionals entering this field either have a background in healthcare or IT, not both. Because of this, they seek advanced training through higher education to develop the skills they're lacking.

Specialized Skills Employers Prefer:

Competency Skills - Analyze, Apply, Evaluate, Create, Divergent thinking, Solutions for undefined problems

Hard Skills - Coding, Statistics, Computer science, Data visualizations, Data analysis

Soft Skills - Communication, Teamwork, Leadership, Conflict resolution, Adaptability

Domain Knowledge - Textbook readings, Lectures foundation

Know Your Story

How you got to where you are today is interesting, so share your journey with people and be proud of what you've accomplished. You know your expertise better than anyone else, and future employers want to know about it. But more than your background, they want to know what you can do for their patients and the future of healthcare.

Get Involved in Your Professional Organizations

Get involved in your professional organizations and meet fellow health informatics professionals. Volunteering with organizations such as the American Medical Informatics Association (AMIA) and the Healthcare Information and Management Systems Society (HIMSS) can help you continue growing your network and also support the development of new skills.

That's why developing a mix of skills that go beyond domain knowledge is an effective approach for entering the field. UIC's Master of Science in Health Informatics program can help you develop the skills employers are looking for: healthinformatics.uic.edu

Standard Skills Employers Require:

- Analytical
- Communication
- Interpersonal
- Leadership
- Organizational
- Problem-solving
- Research
- Technical
- Writing

Build Your Network with 1,500 Alumni

The more people you know, the more chances you'll have to learn about opportunities in the health informatics field. LinkedIn is an excellent platform for professionals like you who are aiming to build their network and keep tabs on new job postings, industry trends and social events in your area.

Another great way to connect with other like-minded professionals is by joining an alumni network. The University of Illinois Chicago's health informatics program includes more than 1,500 alumni. Both current students and alumni could be a great resource for you as you break into the field. When you become a UIC Master's in Health Informatics student, your first stop for building your professional network begins on our [health informatics student and alumni LinkedIn page](#).

Meet our community of accomplished students and alumni as they share their experiences and achievements. [Read articles](#) spotlighting their [stories](#) and learn more about online Health Informatics programs.